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CLAIMS

[Claim(s)]

[Claim 1] (a) The mold dirt cleaning agent constituent characterized by containing the complex of at least one compound chosen from the group which consists of a hydrogen peroxide, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride, and the metal and multidentate ligand which were chosen from the group which consists of the 3rd group of the (b) periodic table, or the 12th group.

[Claim 2] The mold dirt cleaning agent constituent according to claim 1 characterized by containing a surfactant.

[Claim 3] The mold dirt cleaning agent constituent according to claim 1 or 2 whose hydrogen-peroxide addition product of an alkali-metal carbonate is a sodium-carbonate hydrogen-peroxide addition product or a potassium carbonate hydrogen-peroxide addition product.

[Claim 4] The mold dirt cleaning agent constituent according to claim 1 or 2 whose fault way acid chloride is fault way acid sodium, a fault way acid sodium monohydrate, or fault way acid sodium 4 hydrate.

[Claim 5] the claim 1 which is the metal chosen from the group which the metal chosen from the group which consists of the 3rd group of a periodic table or the 12th group becomes from a cerium, titanium, vanadium, niobium, molybdenum, a tungsten, manganese, a rhenium, iron, a ruthenium, cobalt, a rhodium, nickel, palladium, copper, silver, and zinc, or 4 -- a mold dirt cleaning agent constituent given in any they are

[Claim 6] the claim 1 which is the metal chosen from the group which the metal chosen from the group which consists of the 3rd group of a periodic table or the 12th group becomes from a cerium, titanium, vanadium, manganese, a rhenium, iron, a ruthenium, cobalt, nickel, and copper, or 4 -- a mold dirt cleaning agent constituent given in any they are

[Claim 7] the claim 1 which is the metal chosen from the group which the metal chosen from the group which consists of the 3rd group of a periodic table or the 12th group becomes from a cerium, titanium, a rhenium, and a ruthenium, or 4 -- a mold dirt cleaning agent constituent given in any they are

[Claim 8] the claim 1 which is the organic compound with which a multidentate ligand has two or more hetero atoms chosen from the group which consists of nitrogen, phosphorus, oxygen, and sulfur, and configures with a metal through at least two of the hetero atom concerned, and can form a complex, or 7 -- a mold dirt cleaning agent constituent given in any they are

[Claim 9] the claim 1 which is the organic compound whose at least one of the hetero atom which has two or more hetero atoms chosen from the group which a multidentate ligand becomes from nitrogen, phosphorus, oxygen, and sulfur, and configures with a metal through at least two of the hetero atom concerned, can form a complex, and is further configured with a metal is a nitrogen atom, or 7 -- a mold dirt cleaning agent constituent given in any they are

[Claim 10] the claim 1 whose multidentate ligand is polyalkylene polyamine, annular polyamine,

amino alcohols, amino acid or a peptide compound, oximes, a Schiff-base compound, or aromatic polyamine, or 7 -- a mold dirt cleaning agent constituent given in any they are [Claim 11] (a) The content of at least one compound chosen from the group which consists of a hydrogen peroxide, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride It is 0.0001 or 20 % of the weight as total concentration of the available oxygen contained in a constituent. (b) -- the claim 1 whose content of the complex of the metal and multidentate ligand which were chosen from the group which consists of the 3rd group of a periodic table or the 12th group is 0.01 or the 1000 weight ppm in a constituent, or 10 -- a mold dirt cleaning agent constituent given in any they are [Claim 12] the claim 1 whose at least one compound chosen from the group which consists of a hydrogen peroxide, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride is the solution of this compound, or 11 -- a mold dirt cleaning agent constituent given in any they are

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to a new mold dirt cleaning agent.

[0002]

[Description of the Prior Art] Also in a floor plate, an indoor tatami, and indoor furniture, an *Aspergillus niger* generates a comparatively humid place for a place with much contact for moisture, such as an ore shoot, a triangular corner, etc. of a sink of the tile front face in a bathroom, the joint of a tile and a ceiling, or a kitchen, or a moist place, and a further. It molds, even if it uses the detergent and cleanser which made the surfactant the principal component, in case the dirt resulting from these *Aspergillus niger*s is washed, and it is very much hard to remove dirt. Usually, the mold dirt cleaning agent which makes a hypochlorite a principal component is used for removal of these mold dirt. However, in the solution containing high-concentration caustic alkali of sodium, it will decompose, if the concentration of caustic alkali of sodium becomes low or temperature becomes high, although it is stable under ordinary temperature, and poisonous chlorine gas generates a hypochlorite. Moreover, when this alkaline cleaning agent has been accidentally mixed with the acid cleaning agent, by neutralization, a hypochlorite decomposes and chlorine gas occurs. In fact, it is well known during use of a hypochlorite system mold dirt cleaning agent that the accident by generating of chlorine gas is reported. Furthermore, since the mold dirt cleaning agent which makes a hypochlorite a principal component has the strong smell of a characteristic chlorine system, using it in narrow rooms, such as a bathroom, has resistance.

[0003] For this reason, the mold dirt cleaning agent of a non-chlorine system is examined in recent years. For example, with a peroxy hydrogensulfate, an inorganic peroxide is contained in JP,60-1299,A, it molds in it, and ** is indicated, and with a peroxy hydrogensulfate, in JP,60-233200,A, a mineral salt ghost, a magnesium compound, or a copper compound is contained, it molds in it, and ** is indicated. However, a peroxy hydrogensulfate has the danger of reacting violently and igniting if a combustible is contacted, and it cannot say that it is practical, but use of the hydrogen-peroxide compound which is a therefore more mild oxidizer is considered variously.

[0004] For example, in JP,59-164400,A, the acescence liquid cleaning agent containing a hydrogen peroxide and a certain kind of organic acid and a certain kind of a surfactant and water molds, and it is indicating to it that it is effective in removal. In addition, the mold dirt cleaning agent containing one sort of the monomer in which organic polymer (JP,61-158907,A), such as synthetic polymer of a vinyl system, an amorphous silica (JP,61-159496,A), the non-water saturation fatty acid (JP,62-1795,A) of carbon numbers 8-18 and a water-soluble or water-dispersion acrylonitrile homopolymer or acrylonitrile, acrylonitrile, and copolymerization are possible, or two sorts or more of copolymers (JP,62-72798,A), and peroxides, such as a hydrogen peroxide, is indicated. Thus, although some mold dirt cleaning agents containing a peroxide and various additives are examined, all mold, and the dirt removal effect is not enough and has still come to be put in practical use.

[0005]

[Problem(s) to be Solved by the Invention] this invention does not have generating of poisonous chlorine gas, and therefore, it excels in safety and it aims at offer of the high mold dirt cleaning agent of an effect.

[0006]

[Means for Solving the Problem] At least one compound chosen from the group which consists of a hydrogen peroxide, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride as a result of repeating examination wholeheartedly that this invention persons should attain these technical problems. The constituent containing the complex of the metal and multidentate ligand which were chosen from the group which consists of the 3rd group of a periodic table or the 12th group finds out a very efficient thing to dirt removal of mold, and came to complete this invention.

[0007] That is, the mold dirt cleaning agent constituent characterized by this invention containing the complex of at least one compound chosen from the group which consists of the (a) hydrogen peroxide, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride, and the metal and multidentate ligand which were chosen from the group which consists of the 3rd group of the (b) periodic table or the 12th group is offered.

[0008]

[Embodiments of the Invention] Even if it uses independently, respectively, you may use at least one compound chosen from the group which consists of the (a) hydrogen peroxide which is one of the principal components in this invention, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride combining these. Specifically, as a hydrogen-peroxide addition product of an alkali-metal carbonate besides a hydrogen peroxide, a sodium-carbonate hydrogen-peroxide addition product or a potassium carbonate hydrogen-peroxide addition product is mentioned, for example, and fault way acid sodium, a fault way acid sodium monohydrate, or fault way acid sodium 4 hydrate is mentioned as fault way acid chloride, for example.

[0009] Although a pure article can be used for at least one compound chosen from the group which consists of these (a) hydrogen peroxides, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride as it is, it is desirable to use it as a solution of solvents, such as water and alcohol, and it is desirable to use it especially as solution. Moreover, it is desirable still more desirable to be blended so that it may become 0.0001 or 20 % of the

weight as total concentration of the available oxygen contained in a constituent, and at least one compound (it is henceforth called the (a) component for short.) chosen from the group which consists of these (a) hydrogen peroxides, a hydrogen-peroxide addition product of an alkali-metal carbonate, and fault way acid chloride is 0.001 or 10% of the weight of a range.

[0010] The complex of the metal and multidentate ligand which were chosen from the group which consists of the 3rd group of the (b) periodic table or the 12th group who is another [in this invention] principal component (it is henceforth called the (b) component for short.) For example, a cerium, titanium, vanadium, niobium, molybdenum, a tungsten, Manganese, a rhenium, iron, a ruthenium, cobalt, a rhodium, nickel, It is the complex of the metal and multidentate ligand which were chosen from the group which consists of palladium, copper, silver, zinc, etc. preferably A cerium, titanium, vanadium, manganese, a rhenium, iron, a ruthenium, It is the complex of the metal and multidentate ligand which were chosen from the group which consists of cobalt, nickel, and copper, and is the complex of the metal and multidentate ligand which were chosen from the group which consists of a cerium, titanium, a rhenium, and a ruthenium still more preferably. the organic compound which a multidentate ligand has two or more hetero atoms chosen from the group which consists of nitrogen, phosphorus, oxygen, and sulfur, and configures it with a metal through at least two of the hetero atom concerned, and can form a complex -- it is -- for example, G.WILKINSON editing -- it agrees on the above-mentioned conditions among the ligands illustrated by "COMPREHENSIVECOORDINATION CHEMISTRY and Volume 2" (PERGAMON PRESS issue) It has two or more hetero atoms chosen from the group which consists of nitrogen, phosphorus, oxygen, and sulfur as a desirable multidentate ligand, and configures with a metal through at least two of the hetero atom concerned, a complex can be formed, and a metal and at least 1 of the hetero atom to configurate are the organic compounds which are nitrogen atoms further.

[0011] Specifically For example, 1, 4, a 7-trimethyl diethylenetriamine, 1, 1, 4, 7, and 7-pentamethyl diethylenetriamine, 1, 1, 5 and 9, 9-pentamethyldipropylene triamine, N-(2-aminoethyl)-1,3-propanediamine, 3, and 3'-diamino-N-methyl dipropyl amine, 1, 1, 4, 7, 10, and 10-hexa methyl triethylenetetramine, N and N'-screw (2-aminoethyl)-1,3-propanediamine, It is polyalkylene polyamine, such as pentaethylenhexamine or 3, and 3'-iminobis propylamine. 1, 4, 7-triazacyclononane, 1 and 4, 7-trimethyl -1, 4, 7-triazacyclononane, 1, 5, 9-triazacyclododecane, 1 and 5, 9-trimethyl -1, 5, 9-triazacyclododecane, 1, 4, 8, 11-tetraaza cyclo tetradecane, 1, 4 and 8, 11-tetramethyl -1, 4, 8, 11-tetraaza cyclo pentadecane, 1, 4, 8, a 12-tetraaza cyclo pentadecane, 1, 4 and 7, a 10-tetraaza cyclo dodecane, 1, 4, 7, 10, 13, 16-hexa methyl -1, 4, 7, 10, 13, 16-hexa azacyclo OKUTA decane, Or it is annular polyamine, such as 1, 4, 8, and a 12-tetraaza cyclo pentadecane. 2-amino ethanol, 2-dimethylamino ethanol, 1-amino-2-propanol, A diethanolamine, aucton Norian, or 2-(2-amino ethylamino)- They are amino alcohols, such as ethanol. They are amino acid or peptide compounds, such as glycine, alanine, iminodiacetate, N, and N-dimethyl glycine, a proline, or a glycyglycine. A dimethylglyoxime, 1, 2-cyclohexanedione dioxime, An alpha furildioxime, a 3-phenylimino-2-butanone oxime, They are oximes, such as a 3-(2-amino ethylimino)-2-butanone oxime or a 3-(2-pyridyl ethylimino)-2-butanone oxime. N-salicylidene cyclohexylamine, N, and N'-JISARI dust DIN ethylenediamine, An N and N'-(1, 2-ethane G RIDEN) screw cyclohexylamine, Glyoxal screw (2-hydroxy anil), N, and N'-screw (salicylidene) ethylenediamine, Or they are Schiff-base compounds, such as N and N'-screw (salicylidene)-1,3-propanediamine. Or a 2 and 2'-dipyridyl, 1, 10-phenanthroline, 8-hydroxyquinoline, 2-(2-piperidino ethyl)- A pyridine, 2-(2-methylamino ethyl)- It is aromatic polyamine, such as pyridine, hydronalium tris (1-peeler ZOIRU) way acid or 2, and 6-screw (oxazoly) pyridine.

[0012] As long as it forms a complex by 1:0.3 or 1:2.0 (mole ratio) preferably and the multidentate ligand has combined [1:0.2 or 1:3 (mole ratio), and] the metal and the multidentate ligand with the metal within the limits of this, in addition to this, you may have the unidentate ligand, the counter ion, etc. The complex which has two or more sorts of multidentate ligands is

sufficient also as the polynuclear complex of two or more sorts of metals, and two or more complexes can also be mixed and used for these complexes. As these complexes, the edited by Chemical Society of Japan, "an experimental science lecture and the 4th edition", the complex indicated by 17 volumes, 217-407 pages, and 477-512 pages are mentioned, for example. These complexes can also be used without isolating as it is what was adjusted in solutions, such as solution, although it is desirable to adjust separately, to isolate as an item or mixture and to use it.

[0013] these complexes -- as the concentration of a metal atom -- usually -- the inside of a constituent -- 0.01 or the 1000 weight ppm -- desirable -- 0.1 -- or 100 weight ppm combination is carried out In the mold dirt cleaning agent of this invention, in order to make the cleaning agent constituent concerned pile up on a mold dirt front face for a long time and to demonstrate the mold dirt removal effect more efficiently, it is desirable to make a surfactant contain. As a surfactant, an anionic surfactant, a nonionic surface active agent, a cationic surfactant, or an amphiphilic surface active agent can be used.

[0014] As an anionic surfactant, a carbon number 10 or the higher-fatty-acid salt of 22, a carbon number 10 or the alkylbenzene sulfonates of 22, a carbon number 10 or the sulfate salt of the higher alcohol of 22, a carbon number 10 or the alkyl ether sulfate salt of 22, a carbon number 10 or the alpha-olefin sulfonate of 22, a carbon number 10, or the alkane sulfonate of 22 is mentioned, and sodium, a potassium, ammonium, or a substitution ammonium salt is mentioned as a salt, for example.

[0015] As a nonionic surface active agent, ester with a carbon number 8 or the higher alcohol of 24, a carbon number 8 or the fatty acid of 24, polymerization degree 3, the polyethylene glycol of 100 or a polypropylene glycol, a carbon number 10, the ether with the alcohol of 22, polymerization degree 3, the polyethylene glycol of 100 or a polypropylene glycol, a carbon number 10, or the carboxylic acid of 22 etc. is mentioned, for example.

[0016] These surfactants are usually blended 20 or less % of the weight into a constituent, do not have 0.1 preferably and are blended 5% of the weight. Moreover, in the mold dirt cleaning agent of this invention, various additives can be suitably blended as occasion demands in addition to the aforementioned component. the viscosity of the chelating agent for raising the stability of organic [for heightening further the buffer for preparing pH, and the mold dirt removal effect as these additives, for example] and an inorganic builder, and a hydrogen-peroxide-solution solution and an antioxidant, and a constituent -- raising -- usage -- easy -- the abrasive material besides a thickener and a high DOROTO rope agent, the penetrating agent, a water soluble solvent, a solubilizing agent, a pigment, coloring matter, perfume, etc. of the well to carry out are mentioned Moreover, since a complex is stabilized and a mold cleaning effect is heightened more, the same multidentate ligand as having used it for the complex can also be blended further. Furthermore, an activator better known than before can also be used together in the mold dirt remover of an oxygen system.

[0017] As a buffer, for example Alkali-metal hydroxides, such as a sodium hydroxide or a potassium hydroxide, Alkali-metal silicate, such as alkali-metal carbonates, such as a sodium carbonate or potassium carbonate, and a specific silicate, Alkali-metal bicarbonates, such as alkali-metal sulfates, such as a sodium sulfate, and a sodium bicarbonate, Inorganic ammonium salts, such as Tripoli phosphoric acid alkali-metal salts, such as pyrophosphoric-acid alkali-metal salts, such as a specific pyrophosphate, and a specific tripolyphosphate, or an ammonium hydroxide, an ammonium carbonate, silicic acid ammonium, an ammonium sulfate, or an ammonium bicarbonate, etc. are mentioned. These buffers are blended so that pH of the cleaning agent constituent concerned may be adjusted to 4 or 13, and they are usually preferably blended 10 or less % of the weight 20 or less % of the weight into a constituent.

[0018] As a builder, a sodium sulfate, a sodium silicate, a specific tripolyphosphate, ethylene-diamine-tetraacetic acid sodium, or nitrilotriacetic-acid sodium is mentioned, in addition phosphate, a polyacrylate, a multiple-valued carboxylate, or a zeolite is mentioned, for example.

These builders are preferably blended 30 or less % of the weight 50 or less % of the weight into a constituent.

[0019] As a chelating agent, for example Phosphoric acid system compounds or these alkali-metal salts, such as a phytic acid, Ethane -1, 1-diphosphonic acid, ethane-1-hydroxy - Phosphonic acid or these alkali-metal salts, such as 1 and 1-diphosphonic acid or ethanehydroxy-1,1,2-triphosphonic acid, 2-phosphono butane -1, 2-dicarboxylic acid, or 1-phosphono butane - Amino polycarboxylic acids or these alkali-metal salts, such as phosphono carboxylic acids, such as 2, 3, and 4-tricarboxylic acid, these alkali-metal salts, or ethylenediaminetetraacetic acid, etc. are mentioned. These chelating agents are preferably blended 1 or less % of the weight 5 or less % of the weight into a constituent.

[0020] As an antioxidant, phenacetin, butyl-ized hydroxyanisole (BHA) or 2, and 6-JITA challs butyl-4-methyl phenol (BHT) etc. is mentioned, for example. These antioxidants are preferably blended 1 or less % of the weight 5 or less % of the weight into a constituent.

[0021] As a thickener, water expansive clay minerals, such as naturally-occurring polymers, such as synthetic macromolecules, such as a polyacrylate, an acrylic-acid maleic-acid copolymer, a carboxymethyl-cellulose derivative, a methyl cellulose, or a hydroxymethyl cellulose, xanthan gum, guar gum, or Kelzan, a montmorillonite, or veegum, etc. are mentioned, for example. These thickeners are usually preferably blended 20 or less % of the weight 30 or less % of the weight into a constituent.

[0022] As a high DOROTO rope agent, as for the carbon numbers 2, such as ethylene glycol or a propylene glycol, or the diols of 6, a carbon number 6, the alkenyl succinic acid of 18 or its alkali-metal salt, and ortho ****, a paraxylene sulfonic acid or its alkali-metal salt is mentioned, for example, as for a Para toluenesulfonic acid salt, or the alkali-metal salt or ortho *****. These high DOROTO rope agents are usually preferably blended 20 or less % of the weight 30 or less % of the weight into a constituent.

[0023] As a water soluble solvent, monochrome or a diether of bivalencies, such as trihydric alcohols, such as dihydric alcohol, such as monohydric alcohol, such as a methanol, ethanol, or propanol, ethylene glycol, a diethylene glycol, a propylene glycol, or a butylene glycol, and a glycerol, an ethylene glycol monomethyl ether, or the diethylene-glycol monomethyl ether, or a trihydric alcohol etc. is mentioned, for example. These water soluble solvents are preferably blended 20 or less % of the weight 60 or less % of the weight into a constituent.

[0024] As a solubilizing agent, Para toluenesulfonic acid sodium, xylene sulfonic-acid sodium, or a urea is mentioned, for example. These solubilizing agents are preferably blended 5 or less % of the weight 10 or less % of the weight into a constituent. furthermore -- the former -- being well-known -- an activator -- ***** -- an acetonitrile -- or -- a phthalonitrile -- etc. etc. -- nitril - a glucose -- PENTA -- acetate -- or -- acetoxy -- a benzenesulfonic acid -- a salt -- etc. etc. -- O - - - - acetylation -- an object -- N -- N -- ' -- N -- ' - - - - tetraacetyl ethylenediamin -- or -- N - N - - - - a diacetyl -- an aniline -- etc. etc. -- N - - - - acylation -- an object -- or -- phthalic anhydride These activators are preferably blended 20 or less % of the weight 30 or less % of the weight into a constituent.

[0025] When setting using the mold dirt cleaning agent constituent of this invention and using the (a) component as solutions, such as solution, in order to fully demonstrate a cleaning effect, after blending the (b) component of a solid-state or a solution with the solution of the (a) component, it is desirable to contact this to a mold dirt side immediately. Or it molds individually and the (a) component and the (b) component of a solution are contacted to a dirt side, and an effect can also be demonstrated, mixing on a mold dirt side directly. Moreover, after blending the (b) component of a solution, this can also be immediately contacted to a mold dirt side, and the solid (b) component is blended beforehand, and after adding solvents, such as water, to this and preparing concentration, a mold dirt side can also be made to contact immediately, when using the (a) component as a solid-state. It is the method of carrying out another package of the (a) component and the (b) component, mixing both among these, and

making a mold dirt side contact immediately being desirable, blending the (b) component of a solid-state or a solution with the solution of the (a) component with which the surfactant's was blended as most desirable operation, and contacting this to a mold dirt side immediately.

Although it is desirable to blend with the (a) component or the (b) component beforehand when blending an additive etc., three or more persons can be blended simultaneously and this can also be immediately contacted to a mold dirt side. The method by application besides the method of spraying these mold dirt cleaning agents, using a spray container as a method of molding and making a dirt side contacting is also applicable.

[0026]

[Example] Hereafter, an example explains this invention in more detail.

<Production of model *Aspergillus niger* / urethane support> urethane-foam support (5mm cube) was dipped in 10ml of grape-sugar peptone culture media which added the spore of an *Aspergillus niger* (*Aspergillus niger*), and the urethane support in which cultivated for two weeks on the temperature of 25 degrees C and the conditions beyond humidity 90%, and the spore of an *Aspergillus niger* was made to form was produced.

[0027] The one aforementioned model *Aspergillus niger* / urethane support were inserted in the 120ml test tube of examples, 5.0g (pH=4.8) of solution which diluted the commercial 31.0-% of the weight hydrogen-peroxide-solution (Mitsubishi Gas Chemical Co., Inc. make) with ion exchange water here, and was made into 6.0 % of the weight was added, 5.0g of 50 weight ppm solution of a further 2 and 6-screw (oxazolyl) pyridine-dichloro-manganese (II) complex was added, and it was left for 2 hours. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into 3.0 % of the weight of hydrogen peroxides, and the manganese complex 25 weight ppm. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, in urethane support, there is almost no adhesion of an *Aspergillus niger*, it molded nearly completely in it, and dirt was able to be taken. A result is shown in Table 1. According to the following, viewing estimated the criterion of the mold dirt removal effect.

Criterion A It molded nearly completely and dirt was able to be taken.

B Mold dirt was able to be taken a little.

C There was almost no mold dirt cleaning effect.

[0028] Except having not used the manganese complex used in example of comparison 1 example 1, it molded completely like the example 1 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent serve as 3.0 % of the weight of hydrogen peroxides. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, there is almost no change in the character and amount of the *Aspergillus niger* adhering to urethane support, and the mold dirt cleaning effect was not accepted.

[0029] Except having not used the hydrogen peroxide used in example of comparison 2 example 1, it molded completely like the example 1 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into the manganese complex 25 weight ppm. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, there is no change in the character and amount of the *Aspergillus niger* adhering to urethane support, and the mold dirt cleaning effect was not accepted.

[0030] Except having used the manganous chloride instead of the manganese complex used in example of comparison 3 example 1, it molded completely like the example 1 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into 3.0 % of the weight of hydrogen peroxides, and the manganous-chloride 25 weight ppm. Although the color of the *Aspergillus niger* adhering to urethane support was thin a little when the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, it is almost changeless examination before and the mold dirt

cleaning effect was not accepted.

[0031] Following example 2 Angew. Chem. Int. Ed. Engl., 24, and p5 (1985), L is 1, 4, and 7-trimethyl the 2 **** complex [LCu(micro-O) (micro-H₂O) CuL] (ClO₄) 2 and here. -1, 4, and 7-triazacyclononane was compounded.

[0032] 1.0g of fault sodium carbonates and 0.5g of sodium dodecylbenzenesulfonate were taught to the 20ml test tube, and it diluted so that ion exchange water might be added and it might become 5g. Sodium-hydroxide solution was adjusted to this solution 50% of the weight, and proper quantity **** pH was adjusted to 11.0. One an *Aspergillus niger* / urethane support were inserted here, and 5.0g of 50 weight ppm solution of the 2 **** complex which subsequently carried out [above-mentioned] composition was added. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into 10.0 % of the weight of fault sodium carbonates, 5.0 % of the weight of sodium dodecylbenzenesulfonate, and the 2 **** complex 25 weight ppm. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, in urethane support, there is almost no adhesion of an *Aspergillus niger*, it molded nearly completely in it, and dirt was able to be taken.

[0033] Except having not used the 2 **** complex used in example of comparison 4 example 2, it molded completely like the example 2 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent serve as 10.0 % of the weight of fault sodium carbonates, and 5.0 % of the weight of sodium dodecylbenzenesulfonate. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, there is almost no change in the character and amount of the *Aspergillus niger* adhering to urethane support, and the mold dirt cleaning effect was not accepted.

[0034] Except having used the copper sulfate instead of the 2 **** complex used in example of comparison 5 example 2, it molded completely like the example 2 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into 10.0 % of the weight of fault sodium carbonates, 5.0 % of the weight of sodium dodecylbenzenesulfonate, and the copper-sulfate 25 weight ppm. Although the color of the *Aspergillus niger* adhering to urethane support is thin and some cleaning effect was accepted when the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, so remarkable the effect was not seen. As mentioned above, examples 1 and 2 and the example 1 of comparison, or the result of 5 is collectively shown in Table 1.

[0035] Following example 3 J. R. Hartman, et al., J. Am. Chem. Soc., 109, and p7387-7396 (1987), L is 1, 4, and 7-trimethyl a binuclear iron complex [LFe(micro-O) (micro-OCOCH 3)2FeL] (PF6) 2 and here. -1, 4, and 7-triazacyclononane was compounded. 1.6g of hydrogen peroxides, 0.8g of polyoxyethylene (20) stearyl ether, and 0.8g of ethanol were taught to the 20ml test tube 31% of the weight, and it diluted so that ion exchange water might be added and it might become 5g. Sodium-hydroxide solution was adjusted to this solution 50% of the weight, and optimum dose **** pH was adjusted to 11.0. One an *Aspergillus niger* / urethane support were inserted here, and 5.0g of 100 weight ppm solution of the binuclear iron complex which subsequently carried out [above-mentioned] composition was added. The loadings of the constituent evaluated as a mold dirt cleaning agent turn into 5.0 % of the weight of hydrogen peroxides, 8.0 % of the weight of polyoxyethylene (20) stearyl ether, 8.0 % of the weight of ethanol, and the binuclear iron complex 50 weight ppm. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, in urethane support, there is almost no adhesion of an *Aspergillus niger*, it molded nearly completely in it, and dirt was able to be taken.

[0036] Except having not used the binuclear iron complex used in example of comparison 6 example 3, it molded completely like the example 3 and dirt washing ability was evaluated. The loadings of the constituent evaluated as a mold dirt cleaning agent serve as 5.0 % of the weight of hydrogen peroxides, 8.0 % of the weight of polyoxyethylene (20) stearyl ether, and 8.0 % of

weight of ethanol. When the urethane support after 2-hour neglect was taken out with the pincettes and it rinsed enough in ion exchange water, there is almost no change in the character and amount of the *Aspergillus niger* adhering to urethane support, and the mold dirt cleaning effect was not accepted.

[0037] Except having used with the loadings which show the complex shown in Table 2 in Table 2 instead of the binuclear iron complex used in four to example 10 example 3, it molded completely like the example 3 and dirt washing ability was evaluated. A result is shown in Table 2 with the result of an example 3 and the example 6 of comparison.

[0038] 2.1g (10.6 millimole) of the first copper of an acetic acid and 1 hydrates, 2.1g (11.9 millimole) of pentamethyl diethylenetriamine, and 40ml of ethyl alcohol were taught to the Erlenmeyer flask of 11100ml of examples. After carrying out suction filtration of this using a membrane filter and washing with a small amount of ethyl alcohol since blue sedimentation has generated when 7.11g (42.4 millimole) of hexafluoro sodium phosphates is added little by little, stirring under a room temperature in this solution, reduced pressure drying was carried out at 50 degrees C. The 3.63g blue solid-state was obtained.

[0039] Instead of the binuclear iron complex used in the example 3, except having used this compound copper complex, when it molded completely like the example 3 and dirt washing ability was evaluated, the *Aspergillus niger* on urethane support was able to be taken nearly completely.

[0040]

[Table 1]

[0041]

[Table 2]

[0042]

[Effect of the Invention] Since the mold dirt cleaning agent constituent of this invention does not have the influence on the body and environment where the mold dirt cleaning agent of the conventional hypochlorous-acid system sees and does not have generating of chlorine gas, it can be used safely also in a seating part. And it molds and the dirt removal effect is very high.